NAMJOON

HOW DO YOU REPRESENT A SITUATION IN THE FORM OF A LINEAR INEQUALITIES ?

Notes by : rraezzz

♥ Taufik wants to buy some revision books and exercise books at a book exhibition. He finds that the price of a reference book is RM 14 and the price of an exercise book is RM 9. The maximum amount of money that Taufik can spend is RM 100. Represent the above situation in an appropriate form of linear inequality.

Solution :

✓ LET, X = REFERENCE BOOK AND Y = EXERCISE BOOK

✓ HENCE, $14X + 9Y \leq 100$

✓ THE LINEAR INEQUALITY $14X + 9Y \leq 100$ CAN ALSO BE WRITTEN AS ;

$14X \leq 100-9Y$ OR $9Y \leq 100-4X$

PERSONA

♥ Puan Hidayah wants to buy mathematics posters to hang in the Mathematics Room. The cost of a small poster is RM 12.50 and for a large poster is RM 18.50. Represent the purchase of both posters in an appropriate form of linear inequality if the allocation from the school is RM 150.00.

Solution :

✓ LET, K = SMALL POSTER AND B = LARGE POSTER

✓ HENCE, $12.50K + 18.50B \leq 150$

$(25/2)K + (37/2)B \leq 150$

✓ MULTIPLY BOTHS SIDES OF THE INEQUALITY BY 2 TO CANCEL THE FRACTIONAL DENOMINATORS

$(2)(25/2)K + (2)(37/2)B \leq (150X2)$

$25K + 37B \leq 300$

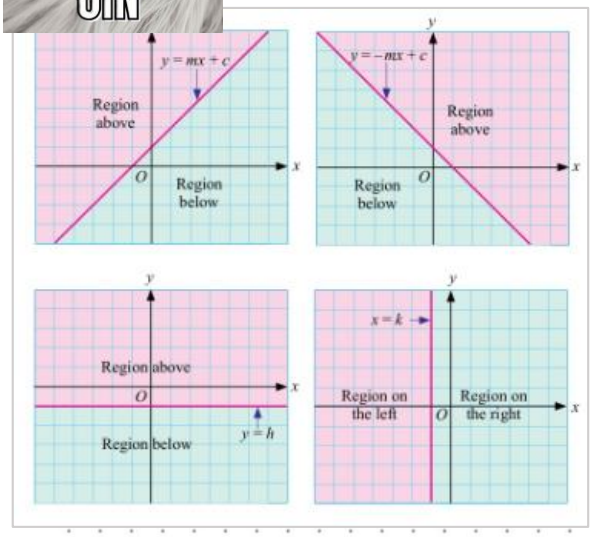
JOONIE

SEOKJIN

HOW DO YOU VERIFY THE CONJECTURE ABOUT POINTS IN THE REGION THAT SATISFY A LINEAR INEQUALITY ?

Notes by : rraezzz

JIN



- ♥ DIAGRAM SHOWS THE TYPES OF REGIONS GENERATED ON A CARTESIAN PLANE WHEN A STRAIGHT LINE IS DRAWN
- ♥ ALL POINTS THAT LIE ON THE STRAIGHT LINE SATISFY THE EQUATION Y=MX+C
- ♥ ALL POINTS THAT LIE IN THE REGION ABOVE SATISFY THE INEQUALITY Y>MX+C
- ♥ ALL POINTS THAT LIE IN THE REGION BELOW SATISFY THE INEQUALITY Y<MX+C

♥ DRAW THE STRAIGHT LINE Y= -2X+6 FOR $-1 \leq X \leq 5$. PLOT THE POINTS (1,-2), (4,-2), (0,1), (1,4), (4,3) AND (2,6). DETERMINE WHETHER THE POINTS PLOTTED SATISFY Y= -2X+6 , Y> -2X+6 OR Y< -2X+6

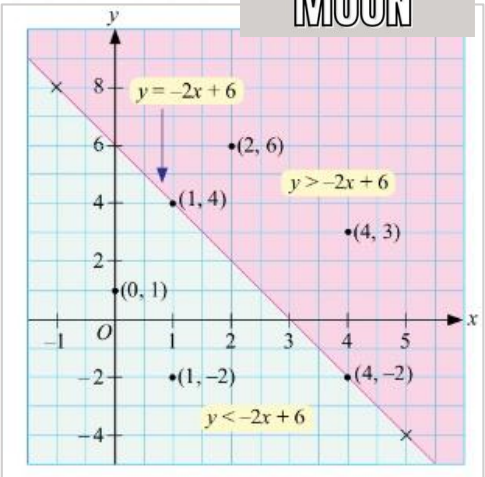
Solution :

Y = -2X+6

x	-1	5
y	8	-4

- ○ POINTS (1,4) AND (4,-2) SATISFY THE EQUATION Y= -2X+6
- ○ POINTS (2,6) AND (4,3) SATISFY THE INEQUALITY Y> -2X+6
- ○ POINTS (0,1) AND (1,-2) SATISFY THE INEQUALITY Y< -2X+6

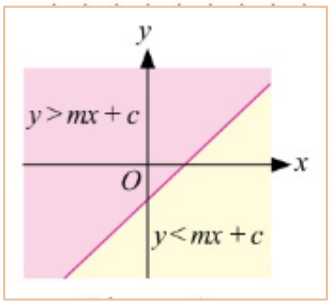
MOON



YOONGI

HOW DO YOU DETERMINE AND SHADE THE REGION THAT SATISFIES A LINEAR INEQUALITY ?

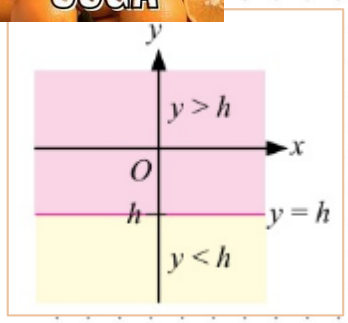
Notes by : rraezzz



- POINTS THAT LIE ON THE STRAIGHT LINE SATISFY THE EQUATION Y=MX+C
- POINTS LOCATED IN THE REGION ABOVE THE STRAIGHT LINE SATISFY THE INEQUALITY Y> MX+C
- POINTS LOCATED IN THE REGION BELOW THE STRAIGHT LINE SATISFY THE INEQUALITY Y< MX+C

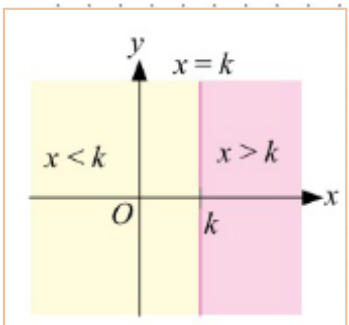
- FOR THE STRAIGHT LINE Y=H AND X=K THAT ARE DRAWN ON A CARTESIAN PLANE WHERE H AND K ARE CONSTANTS, ALL THE POINTS ON THE CARTESIAN PLANE CAN BE ALSO CATEGORISED AS FOLLOWS :

SUGA



- POINTS THAT LIE ON THE STRAIGHT LINE SATISFY THE EQUATION Y=H
- POINTS LOCATED IN THE REGION ABOVE THE STRAIGHT LINE SATISFY THE INEQUALITY Y> H
- POINTS LOCATED IN THE REGION BELOW THE STRAIGHT LINE SATISFY THE INEQUALITY Y< H

SHADOW



- POINTS THAT LIE ON THE STRAIGHT LINE SATISFY THE EQUATION X=K
- POINTS LOCATED IN THE RIGHT REGION ABOVE THE STRAIGHT LINE SATISFY THE INEQUALITY X> K
- POINTS LOCATED IN THE LEFT REGION OF THE STRAIGHT LINE SATISFY THE INEQUALITY X< K

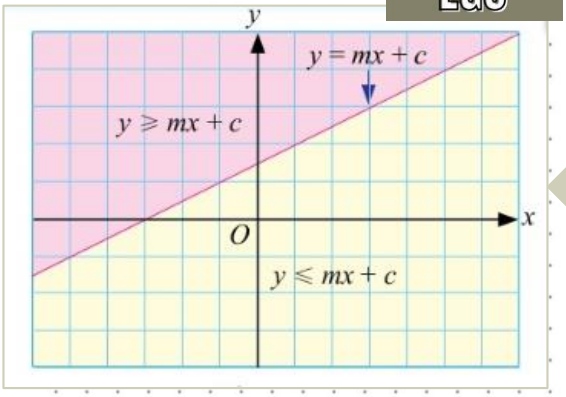
HOSEOK

WHAT IS THE RELATIONSHIP BETWEEN A POINT ON A CARTESIAN PLANE WITH THE INEQUALITY $y>mx+c$, $y< mx+c$, $y \geq mx+c$ OR $y \leq mx+c$?

Notes by : rraezzz

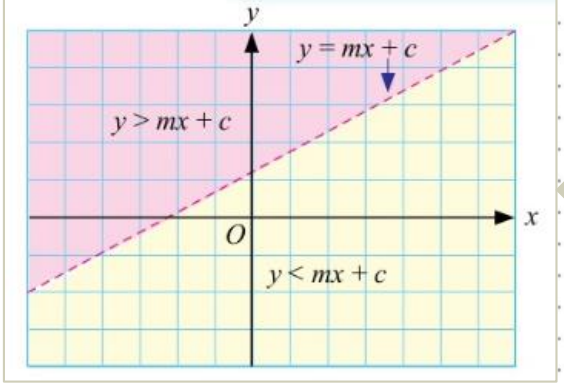
SYMBOL $>$ $<$	♥ POINTS THAT LIE IN THE REGION ABOVE OR BELOW A STRAIGHT LINE $Y=MX+C$ ♥ THE STRAIGHT LINE IS DRAWN USING A DASHED LINE
SYMBOL $\geq$ $\leq$	♥ POINTS THAT LIE ON THE STRAIGHT LINE $Y=MX+C$ INCLUDING THE REGION ABOVE OR BELOW ♥ THE STRAIGHT LINE IS DRAWN USING A DASHED LINE

EGO



THE REGIONS INCLUDE POINTS THAT LIE ON THE STRAIGHT LINE $Y= MX+C$

HOBI



THE REGIONS DO NOT INCLUDE POINTS THAT LIE ON THE STRAIGHT LINE $Y= MX+C$

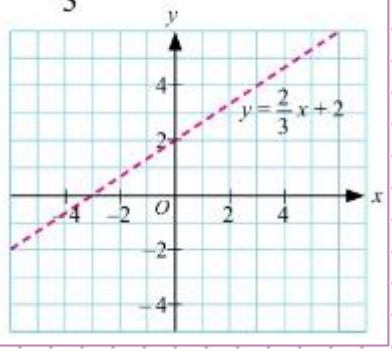
JIMIN

SHADE THE REGION THAT REPRESENTS EACH OF THE FOLLOWING INEQUALITIES

Notes by : rraezzz

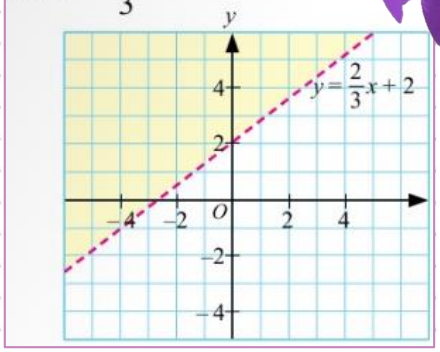
MOCHI

(a) $y > \frac{2}{3}x + 2$



Solution :

(a) $y > \frac{2}{3}x + 2$



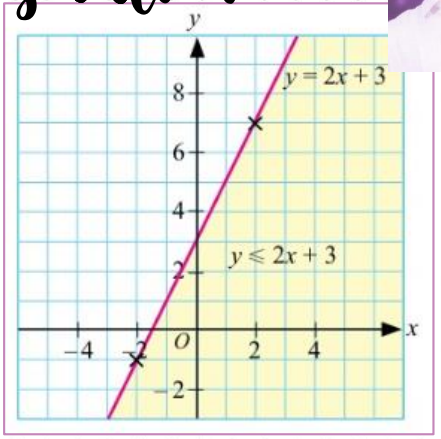
FILTER

DRAW THE GRAPH AND SHADE THE REGION THAT REPRESENTS EACH OF THE FOLLOWING INEQUALITIES

$Y \leq X + 3$

x	-2	2
y	-1	-7

Solution :



WHAT IS THE MEANING OF SYSTEM OF LINEAR INEQUALITIES?

A COMBINATION OF TWO OR MORE LINEAR INEQUALITIES

TAEHYUNG

HOW DO YOU DETERMINE THE APPROPRIATE INEQUALITY FOR A CERTAIN SITUATION ?

Notes by : rraezzz

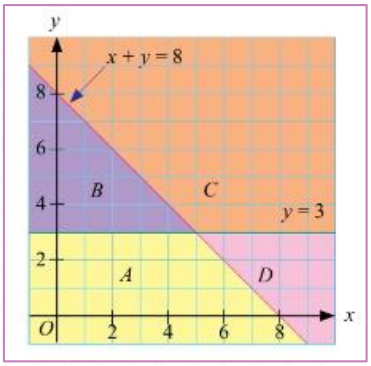
TAETAE

Example of situation	Linear inequality
y is greater than x	$y > x$
y is less than x	$y < x$
y is not less than x	$y \geqslant x$
y is not more than x	$y \leqslant x$
y is at least k times x	$y \geqslant kx$
y is at most k times x	$y \leqslant kx$
Maximum of y is k	$y \leqslant k$
Minimum of y is k	$y \geqslant k$
Sum of x and y is greater than k	$x + y > k$
Difference between y and x is less than k	$y - x < k$
y is more than x by at least k	$y - x \geqslant k$

HOW DO YOU DETERMINE THE CONJECTURE ABOUT THE POINTS IN THE REGION THAT SATISFY A SYYTEM OF LINEAR EQUATION ?

Solution :

Region	Point	Inequality $x + y \leqslant 8$	True/False	Inequality $y \geqslant 3$	True/False
A	(2, 1)	$2 + 1 \leqslant 8$	True	$1 \geqslant 3$	False
	(4, 2)	$4 + 2 \leqslant 8$	True	$2 \geqslant 3$	False
B	(2, 5)	$2 + 5 \leqslant 8$	True	$5 \geqslant 3$	True
	(3, 4)	$3 + 4 \leqslant 8$	True	$4 \geqslant 3$	True
C	(2, 7)	$2 + 7 \leqslant 8$	False	$7 \geqslant 3$	True
	(7, 4)	$7 + 4 \leqslant 8$	False	$4 \geqslant 3$	True
D	(7, 2)	$7 + 2 \leqslant 8$	False	$2 \geqslant 3$	False
	(8, 1)	$8 + 1 \leqslant 8$	False	$1 \geqslant 3$	False



INNER CHILD

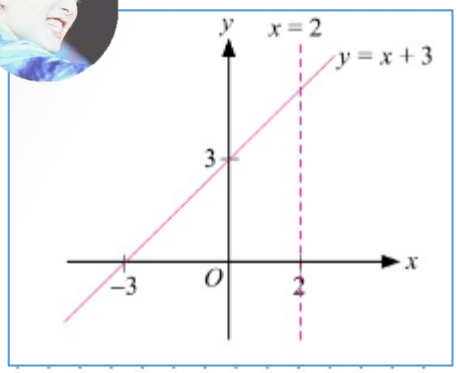
THE ONLY POINTS FROM REGION B SATISFY BOTH THE INEQUALITIES THAT ARE TESTED. THUS, REGION B SATISFIES THE INEQUALITIES X+Y≤8 AND Y≥3

JUNGKOOK

HOW DO YOU DETERMINE AND SHADE THE REGION THAT SATISFIES A SYSTEM OF LINEAR INEQUALITIES ?

Notes by : rraezzz

- ♥ MARK THE REGION THAT SATISFIES $Y \leq X + 3$ WITH LETTER A
- ♥ MARK THE REGION THAT SATISFIES $X<2$ WITH THE LETTER B
- ♥ SHADE THE COMMON REGION MARKED BY BOTH THE LETTERS A AND B



MY TIME

HOW DO YOU SOLVE PROBLEM INVOLVING SYSTEM OF LINEAR INEQUALITIES IN TWO VARIABLE ?

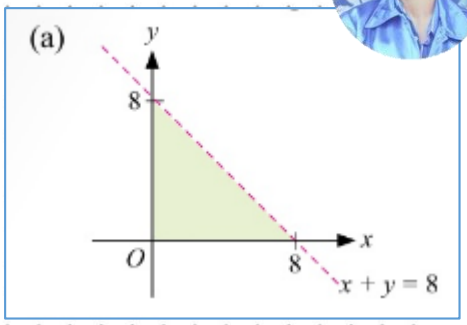
- ♥ THE THREE STRAIGHT LINES INVOLVED ARE $X+Y=8$, THE X-AXIS AND THE Y-AXIS.

I. THE SHADED REGION IS BELOW THE STRAIGHT LINE $X+Y=8$ AND IS DRAWN WITH DASHED LINE, THUS $X+Y<8$

II. THE SHADED REGION IS ABOVE THE X-AXIS, THUS $Y \geq 0$

III. THE SHADED REGION IS TO THE RIGHT OF THE Y-AXIS , THUS $X \geq 0$

IV. THE THREE INEQUALITIES THAT SATISFY THE SHADED REGION ARE $X+Y<8$, $Y \geq 0$ AND $X \geq 0$



KOOKIE